UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
2624	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

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PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
Office Action Summary	10/632,303	STANTCHEV ET AL.
	Examiner	Art Unit
	Dennis Rosario	2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>8/1/2003 3/31/2004 4/23/2004</u>.
2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-56* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) *1-56* is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on *8/1/2003 3/31/2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☐ All b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *4/23/2004*.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Claim Objections

1.   Claims 52 and 53 objected to because of the following informalities: Claims 52

and 53 are identical claims that depend on claim 51.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-3,5-7,9-15,45-48 and 50-56 are rejected under 35 U.S.C. 102(e) as

being anticipated by Patel et al. (US Patent 6,947,581 B1).

Regarding claim 1, Patel et al. or Patel discloses a dental image data processing

unit configured to receive a set of image data and provide the image data to at least one

external device in a plurality of external devices, comprising:

a)   an interface processing module (fig. 2,num. 204) configured to:

  a1)   receive the image data (via a line in fig. 2 between numerals

202,204,206 and 208) and

  a2)   convert the image data (via fig. 1,num. 104 as described in col. 2, lines

60-63) into a format compatible (or "PACS compliant format" in col. 1, line 42) with the

at least one external device (fig. 1,num. 108 that is a PACS Database).

Regarding claim 2, Patel discloses a dental image data processing unit according

to claim 1, wherein the dental image data processing unit (fig. 1,num. 104) is configured

to be connected to the external device via a wireless connection (or "wireless interfaces"

in col. 6, line 13) .

Regarding claim 3, Patel discloses a dental image data processing unit according

to claim 1, wherein the format is a DICOM format (or "DICOM standard format" in col. 2,

line 62).

Regarding claim 5, Patel discloses a dental image data processing unit according

to claim 1, further comprising:

a)   an image enhancement module (fig. 3,num. 310), wherein the image

enhancement module is configured to receive the image data, enhance the image data,

and provide the enhanced image data to the interface processing module.

Regarding claim 6, Patel discloses a dental image data processing unit according

to claim 5, wherein the image enhancement module is configured to at least one of:

a)   reduce noise (or "noise reduction" in col. 5, line 13) in the image data and

b)   remove artifacts from the image data.

Regarding claim 7, Patel discloses a dental image data processing unit according to claim 5, wherein the image enhancement module is configured to adjust a plurality of brightnesses for a plurality of pixels across an output scale (or "contrast enhancement" in col. 5, line 13).

Regarding claim 9, Patel discloses a dental image data processing unit according to claim 1, further comprising:

a)   a sensor interface (or the input of fig. 1,num. 104) for receiving the image data from a sensor (fig. 1,num. 102), wherein the sensor interface is compatible with multiple types of sensors (as indicated by "Modality" in fig. 1,num. 102).

Regarding claim 10, Patel discloses a dental image data processing unit according to claim 1, further comprising:

a)   a memory (fig. 2,num. 206) configured to receive image data and store image data.

Regarding claim 11, Patel discloses a dental image data processing unit according to claim 1, further comprising:

a)   a dedicated display (fig. 2,num. 208) configured to display an image corresponding to the image data.

Claim 12 is rejected the same as claim 2. Thus, argument similar to that presented above for claim 2 is equally applicable to claim 12.

Regarding claim 13, Patel discloses a dental image data processing unit according to claim 1, further comprising:

a) an external interface (fig. 2,num. 204) configured to receive the image data from the interface processing module (fig. 1,num. 104) and transmit the image data to the at least one external device.

Regarding claim 14, Patel discloses a dental image data processing unit according to claim 13, wherein the external interface comprises:

a) a PC card interface (or "network cards" in col. 6, line 11) and

b) an Ethernet interface.

Claim 15 is rejected the same as claim 2. Thus, argument similar to that presented above for claim 2 is equally applicable to claim 15.

Regarding claim 45, Patel discloses a method of acquiring dental image data

relating to a target, comprising:

a)   generating a set of image data (via fig. 1,num. 102) corresponding to the

image of the target;

b)   converting the image data (or "convert the raw image data" in col. 2, line 61)

into a format compatible with a selected external device (or "PACS compliant format" in

col. 1, line 42 corresponds to a PACS database in fig. 1,num. 108 which corresponds to

a selected external device since a choice of using two separate databases was selected

instead of a "single database" in col. 2, line 66) in a set of accessible external devices

(fig. 1,numerals 108 and 110); and

c)   providing the image data in the compatible format to the selected external

device (via a line in fig. 1 between numerals 104,108,110,118,112,114 and 116).

Claims 46,47,48, 50,51,52,53,54,55 and 56 are rejected the same as claims

5,6,7,10,11,12,12,12,3 and 13, respectively. Thus, argument similar to that

presented above for claims 5,6,7,10,11,12,12,12,3 and 13 is equally applicable to

claims 46,47,48, 50,51,52,53,54,55 and 56, respectively.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 4,16-21,23-36 and 38-44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Patel et al. (US Patent 6,947,581 B1) in view of Schulze-Ganzlin et

al. (US Patent 4,995,062 A1)

Regarding claim 4, Patel teaches a dental image data processing unit according to

claim 1, further comprising:

a)   a network interface (fig. 6,num. 204) configured to connect the image data

processing unit to a network (fig. 1,num. 106).

Regarding claim 16, Patel et al. teaches a data processing unit for a dental imaging system, comprising:

a)   a sensor interface (the input of fig. 1,num. 104) configured to connect to a sensor (fig. 1,num. 102 corresponds to an "X-ray imager" in col. 2, line 46);

b)   an image processing component (fig. 6,num. 608)

b1)   connected to the sensor interface (via fig. 6,num. 606) and

b2)   configured to receive a set of image data via the sensor interface (via a line in fig. 6, between numerals 602,608,604,606 and 610) and to

b3)   process the set of image data to generate a set of processed image data (as indicated in fig. 3,num. 306); and

c)   an interface processing module (fig. 1,num. 108) configured to

c1)   receive the processed image data from the image processing component (upon an input of fig. 1,num. 108) and to

c2)   provide data in multiple formats (or a "Raw Image" as shown in fig. 1,num. 110 also called "partially preprocessed image data" in col. 3, lines 5,6 is one format and "fully preprocessed images" in col. 3, line 2 is the second format wherein both formats can be stored in a "single data base" in col. 2, line 66 corresponding to fig. 1,num. 108:

or in a second interpretation an image can be displayed using an interface

processing module, fig. 2,num. 208, according to "operator preferences...by default" in

col. 4, line 52 that include "screen resolution, image layout" in col. 4, line 56 wherein

said screen resolution is corresponds to a first format to display an image and said

image layout corresponds to a second format to display an image).

Regarding claim 30, Patel teaches an imaging system for providing data to

multiple external devices, comprising:

a)   a sensor (or "X-ray imager" in col. 2, line 46); and

b)   a data processing unit (fig. 1, num. 104), wherein the data processing unit is

configured for:

b1)   receive data from the sensor (from fig. 1,num. 102); and

b2)   provide the data to the multiple external devices (fig. 1,numerals 108

and 110) in multiple formats (corresponding to "fully preprocessed images" in col. 3, line

2 stored in fig. 1, num.108 while "partially preprocessed image data" in col. 3, lines 5,6

stored in fig. 1, num. 110) compatible with the multiple external devices (since the fully

preprocessed images and the partially preprocessed image data were "prepar[ed]...for

storage" in col. 2, lines 58,59 for each of said fig. 1,num. 108 and 110, respectively,

which make them compatible with a respective storage device).

Patel does not teach the claimed dental image data processing unit or dental sensor, but does teach that a plurality of image sources can be used with the invention as indicated in fig. 1,num. 102 such as an "X-ray imager" in col. 2, line 46. Thus, Patel suggest to one of ordinary skill in the art to select an imaging source corresponding to fig.1, num. 102 to use with the invention.

Schulze-Ganzlin et al. teaches one such imaging source as show in fig. 1,num. 1 that uses an x-ray with an imager as shown in fig. 3,numerals 12 and 13.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify fig. 1,num. 102 of Patel with Schulze-Ganzlin et al.'s teaching of fig. 1,num. 1, because Schulze-Ganzlin et al.'s teaching obtains "accurate tomograms" in col. 1, line 52.

Claims 17-21 and 23-29 are rejected the same as claims 2-4,6,7 and 9-15. Thus, argument similar to that presented above for claims 2-4,6,7 and 9-14 is equally applicable to claims 17-21 and 23-29.

Claims 31-36 and 39-44 are rejected the same as claims 2-7 and 10-15. Thus, argument similar to that presented above for claims 2-7 and 10-15 is equally applicable to claims 31-36 and 39-44.

Regarding claim 38, Schulze-Ganzlin et al. of the combination teaches an imaging system according to claim 30, further comprising:

a)   a sensor interface (fig. 4,num. 16) for receiving the data from the dental sensor (fig. 3,num. 12 and 13), wherein the sensor interface is compatible with multiple types of dental sensors (since fig. 3, includes two sensors 12 3and 13)

6.   Claims 8,22,37 and 49 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Patel et al. (US Patent 6,947,581 B1) in view of Hsieh (US Patent

6,295,331 B1).

Regarding claim 8, Patel does not disclose claim 8, but teaches "noise reduction"

in col. 5, line 13, but does not teach how to perform noise reduction. Thus Patel

suggests to one of ordinary skill in the art to find a teaching that teaches how to perform

noise reduction.

Hsieh teaches "noise reduction" in col. 6, lines 26,27 and a method of how to

perform noise reduction using a filter as suggested by Patel and the remaining limitation

of:

a)   measure an amount of noise in the image data and select a filter according to

the measured noise (as discussed in col. 6, lines 9-11).

It would have been obvious at the time the invention was made to one of ordinary

skill in the art to modify Patel's teaching of noise reduction with Hsieh's teaching of

noise reduction, because Hsieh's teaching provides for "further noise reduction" in col.

6, lines 26,27.

Claims 22,37 and 49 are rejected the same as claim 8. Thus, argument similar to

that presented above for claim 8 is equally applicable to claims 22,37 and 49.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Samara et al. (US Patent 7,013,032 B1) is pertinent as teaching a PACS system with two formats: "DICOM3 or DEFF" in col. 3, line 11.

Callahan et al. (US Patent 5,959,678 A1) is pertinent as teaching a PACS system with two formats: "DICOM3 (or DEFF)" in col. 3, lines 25,26.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

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system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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